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CIVIC PROBLEMS CAUSED BY THE IMMIGRANT

By J. M. Shaver

IN the brief time alloted to me I shall not attempt to deal with any phase of the immigrant question except that which refers to those immigrants who are non-English speaking.

The civic problems generally enumerated under the above heading are:

1. The housing problem (overcrowding, poor ventilation, lack of gardens and playgrounds).
2. Unsanitary conditions (outside closets, poor care of garbage, etc.).
3. Infant mortality arising from ignorance as to the proper care and feeding of infants.
4. Spread of contagious and infectious diseases.
5. Drunkenness and brawling.
6. Juvenile delinquency; and last, but by no means least,
7. The corruption of the ballot.

Strictly speaking, these problems do not originate with the immigrant. It is true that they are aggravated by the immigrant, but perhaps it is more true that they aggravated the immigrant. It is perfectly evident that all these problems have a relation and inter-relation somewhat perplexing. But like all other scientific investigations we get at the truth best by studying the matter historically.

About 95 per cent. of our non-English speaking immigrants came from rural districts, a large percentage of whom have lived in huts nestled in the many small villages throughout Southern Italy, Austria, Russia and the Balkan States.

These people are only beginning to struggle out of absolute illiteracy, the state of which may be realized when we consider that the Ruthenians just two years ago celebrated the centenary of the birth of Taras Chevehenko, the Chaucer of the Ukraine.

This simple rural life of poverty is so marked that meat is only to be had for a meal or two at pig-killing time, when the landlord is kind enough to favor them with this taste of luxury, and the indulgence in liquor of any kind is generally limited to celebrations, such as weddings and christenings. The women work in the fields beside the men and are generally of excellent physique. It is in many cases a survival of the fittest, but the fact remains they are "fit."

One cannot imagine the change that these people are forced to undergo when they are immediately thrust into the complicated life of our cities, with little or no restraints of the home land. Generally the men come first, and are thus away from the influence of mother, wife or sweetheart, and often the new atmosphere breaks the influence of the church itself. Then there is the fact that the newcomer has not yet formed a community interest. He is, for the present, a transient. The morals of the community are not his "stake."

In fact, our whole attitude toward him is apt to discourage any community spirit he might have lurking somewhere in his anatomy. In the first place, he is treated as merely a commercial asset. We get work out of him and pay him as low as the labor market will allow. We swear at him when he doesn't understand English, until he thinks swearing a marked Canadian characteristic, and he goes home and so successfully copies us in this that we generally find the whole family, from the

lisping child to the blushing debutante, proficient in that art. I once asked one of our boys if anybody in the Coal Docks (the foreign section of the city) did not swear, and he immediately replied, "Yes, Mr. Shaver, Miss Hannah doesn't." Now, Miss Hannah is my assistant, and a very devout Presbyterian, so the positive side of his statement was no news to me.

The real estate agent tries to sell him property. The insurance agent tries to get him to take out a policy, the liquor merchant plies his trade most ardently. We so baptize the newcomer into the atmosphere of finance that we cannot wonder that one of their farmers, who had entertained a Canadian traveller for a meal and was offered pay, observed to a friend that these Canadians even ran their hospitality on a financial basis.

Perhaps the worst phase of our treatment of the foreigner is our political attitude towards him. We give the adult foreigner the franchise with absolutely no provision made for his education into what citizenship means. We neglect him entirely until just before election time, and then we try to get his vote. With the temptation that political strife engenders, and with the foreigner's interest in our national and civic life almost a zero, we have a fertile field for not only political corruption, but for what is far worse: "Manhood corruption." One cannot wonder that an apostle of freedom who had risked his life for his ideals in Russia, was led to remark, after seeing one of our electoral campaigns: "Canada is no country; it is just a place to make money."

I have hinted why these people do not understand sanitary laws. How could people living such primitive lives be expected to know anything about modern sanitation?

This condition is not helped one whit by the landlord, who builds all over his lot and puts in as many apartments as possible with the cheapest equipment "within the law" or often not within the law.

As far as the babies are concerned, it is the same old question. Mothers who work out in the fields and nurse their babies, seldom lose one, but when those same mothers are forced to live in crowded city tenements, where they rarely get a breath of country atmosphere, and keep a boarding-house where they cook, wash and sew for fifteen or twenty men, they become so busy that they wean the baby to save time and then an older child can look after it. Neither before nor after birth does this baby get a square deal.

As for the older children, they learn English much faster than their parents, and often learn questionable things on the street, the meaning of which the parents do not understand. The result is often that the child despises the non-English-speaking parent, and we find the largest list of juvenile delinquents among children of immigrants.

When one begins to look round for a solution of the problem, what attitude do we find on the part of the Canadian people in general?

First of all, there is that almost universal assumption that we are the chosen people of God and all others are of an inferior race. This conviction increases in direct ration as to our ignorance. Thus we have all the terms running from the "damned dago" of the workman, to the "horrible foreigner" on the part of the ladies, or "poor ignorant foreigner" on the part of the clergy.

This aloofness and contempt ceases for a short time of each year, and that is during elections. I was speaking on this problem in Toronto some months ago, and during the discussion a gentleman remarked that "in our town the only way we can get the foreigner out to vote is to pay him for it." My reply is: "That is the only kind of a Canadian the foreigner of that town really knows."

Solution.

Now as to the solution of the problem. Primarily, it is a personal matter. The foreigner must become personally acquainted with the men and women who are making the highest national character of Canada to-day. It is just a case of getting together. (For whether we like it or no, we are all making national character of some kind, and the foreigner is helping us one way or the other.)

There must be some institution which shall act as an exchange of personality, ideas and ideals. That can best be a social settlement or the school used as a

social centre. And let me emphasize the fact that the centre of the social centre must be a personality and not a mere secretary or manager.

True, what we do must be well done, whether it be teaching English, civics or domestic science, or managing a civic club, if we are to hold the respect of these people, but a mechanical doing of this work without the inspiration of big, broad-minded, patriotic souls, is going to rob these people of their souls, and we shall have failed in our real object.

To be more definite: The social worker ought to study sympathetically the people among whom he is working. He should know their history, their great reformers, literary men, artists, and a bit of their greatest literature and art. In this way a bond of sympathy immediately arises between teacher and pupil, and our heroes, patriots, authors and artists become companions of theirs in their thoughts, and they become spiritual citizens of our country as well as of their own. In fact, impereeptibly their passion for the highest and best is not transferred from the old land to ours, but, what is far better, is increased so as to take in ours too. On the other hand, we find the teacher grows in the same respect.

Our experience among the fifteen nationalities who attended our night school and institute in Fort William gives ample proof of this theory. During the four years we have carried on this work we taught some 300 men to speak, read and write the English language.

We began by teaching them the language of domestic life, following this with that of our industrial and commercial life. From this we took up Canadian history and civics, showing the struggle our forefathers put up for the measure of freedom we enjoy, and giving a short sketch of our national heroes, such as Radisson, the Jesuit missionaries, Sir Isaac Brock, Lord Durham, etc.

As they progressed, we went more into detail. We too up civic life, showing how free our judges, magistrates and medical officers of health are from political influence. Examples such as aldermen being held up for not putting in sewer connections, and the city of Fort William being held up for not putting in adequate sewers in the foreign sections of the city, were admirable examples with which to drive home these facts.

The freedom of speech and the press were brought home by getting the most intellectual to write letters to the press airing civic grievances. These letters from Austrians, even in war time, taught what British freedom means more than anything else could.

Special lessons on how a city is governed are put on for weeks before civic elections take place. Lessons demonstrated with dummy ballots show the absolute secrecy of the Federal ballot, etc., etc.

To prepare our teachers for this work we put on a special training course for them with introductory lectures on the different nationalities, their home conditions, schools, politics, etc. This was followed by definite training in how to use the system we adopted so that the work was done scientifically and sympathetically.

The result was not only seen on the foreigner who invited us to speak on these subjects in his own clubs and halls, and in one case went so far as to make us honorary president of one of his literary and relief societies; but upon the changed attitude of the noble body of teachers who became acquainted with these great souls who were struggling out into the light of a new freedom. It created a body of cooperation which proved a great force in a bigger vision and cleaner civic life.

The same result was achieved in the work among the children. The children learned cooking, sewing, housekeeping, household economics, sanitation and hygiene, but they got more than that. They got the personal inspiration of the characters of the fifty-eight volunteer workers who either taught their classes or acted as big sisters, big brothers, or home advisors to those families. Discouraged mothers made another try at cleaning up, and trying, succeeded. Children learned to make their own nightgowns, and in doing so learned the habit of going to bed in a healthy way instead of with the limited preparation of taking off their boots and saying their prayers. Where boys and girls were breaking with the home, the sincere respect of the uptown mother for her downtown neighbor brought back

that respect and saved the Children's Aid Society a "ward."

The very first people of the city of Fort William are among our personal workers, and it is as it should be.

When children are ill and should go to the hospital, the personal friend of that home calls for the mother, goes with her to the hospital, dissipates all the foolish fears these poor primitive people have for institutions, and proves a valuable aid to the M.H.O. and district nurse. The regulations of the doctor are explained and assistance is given to carry it out, and in many cases frequent calls are made to demonstrate the changing of a bandage and the keeping of wounds antiseptic. In this way the personal friendship of the neighbor from uptown makes effective the friendship of the professional man or woman who has not time for the "line upon line." One successful case such as I described often converts a whole neighborhood to the right treatment of the sick and a more friendly attitude toward the sanitary and M. H. officers.

The school nurse put on in our institute a course of lectures on the care of the baby. These simple directions which had been demonstrated were printed in the people's native language on one side of a little pamphlet for the mothers to keep for reference, and on the other side in English for the children to read. Thus we are training the future mothers also.

And do they give it back? Yes—one thousand fold. We had a mothers' club where Italian and Austrian mothers knitted socks and made comforts for the Italian and British soldiers. When our city librarian wished to take a library survey of the city of Fort William (by the way, we have a branch of the public library and do a great deal toward directing their reading), she was struck at the foreign quarter. I asked my senior class if those who would like to do something for their city would remain at the close of the night school. All remained, and I sent them out two and two — Italian and Slav — to do that quarter of the city, and we were forced to conclude that no other volunteer workers did their work better.

When a Local Option campaign was put on at the head of the lakes, a young man who got his training with us took charge of the foreign section of Port Arthur, and every poll gave over 60 per cent. vote for the bill. In Fort William the liquor forces put up their biggest fight in the foreign quarter, and in spite of that fact those people gave as good a vote for the bill as the best residential part of the city. I give this, not because I am in favor of the bill, but to show that the foreigner may be brought to have a vital interest in his community morally, as well as financially, if he is only made to feel that this, too, is a country of patriots who are sacrificing for the best things, and that we are counting on him to make that contribution which he must make, or we shall be a national failure.

The lands which produced a Tolstoi, a Chevchenko, a Garribaldi, a Mazzini and a Cavour, shall surely not fail us in Canada if we give them the British treatment which is due them, and they shall not only give their lives on the battlefields of Europe, as twenty-five of our Russian lads are already doing with the Canadian forces in Flanders, to say nothing of our Italian reservists who have gone home to join the colors, but they shall give their lives to Canada at home as Theodore Humenuk, the Ruthenian, and Emilio Marino, the Italian, are doing. Ted knew no English four years ago. He could not pass out of the second reader in the general subjects. He now has his part one matriculation, and will have full matriculation for Manitoba University in another year. He is going into law to protect his people from the crooks, both foreign and domestic, who infest the land.

Marino is the Italian consular agent, who came to Fort William as a laborer, and for four years worked as a freight handler. We taught him English. He became a bank clerk, afterward went into business as steamship and railway ticket agent, etc., and finally became consular agent. We help him and stand by him in his work. He has already broken up what promised to be two blackhand gangs, and is now fighting another, which has made some terrible attacks on him personally. But he is fighting your battle and mine. He is fighting for the future law and order of Fort William, and whether your children and mine know it or not, they shall profit by his sacrifice and service in

the generations yet to be, and when you and I meet these fellows before the great white throne, there will be nobody around to call them "Dago"; their real record will be there.

There are some 7,000 Canadians under the sod in Flanders, and another 7,000 permanently disabled. That's some of the price we are paying for our freedom. There is coming a new immigration to Canada such as we have not yet seen. The character they give to Canada will just be the character and spirit with which we meet them. If we do our duty to-day, we may hold Canada worth the price we are paying for it. If we neglect—in a great measure our lads shall have died in vain.

God help us not to fail!

MEAT INSPECTION

Contributed to the Congress of the Canadian Public Health Association, at Quebec,

By Dr. A. J. Hood, Supt. of Food Inspection Branch, Health Department, Montreal

THE CONTROL and regulation of the meat supply is a very important subject, inasmuch as meat and meat food products constitute one of the principal sources of nourishment for the human body. It is therefore a question requiring a large amount of scientific knowledge as well as practical commonsense, and must be conducted in such a manner as to give the consumer a satisfactory guarantee that he is receiving a safe and wholesome article of food.

I do not intend to go into the history of meat inspection at any length in this paper, and only wish to state that its beginning dates back even to the fourteenth century, when public abattoirs existed and inspection was in force. Yet we of the twentieth century, with all our scientific knowledge, are practically only beginning to realize its importance, and give it the necessary support.

It was not until the year 1906, when the Federal Government decided to establish a system of meat and canned goods inspection, for the control of the export and inter-provincial meat trade, that this system was introduced by Dr. J. G. Rutherford, who was then Veterinary Director General, and who drafted and succeeded in having passed by Parliament at Ottawa a bill known as the "Meat and Canned Goods Act." This done, he proceeded to organize a staff of meat inspectors on lines similar to those in force in the United States Bureau of Animal Industry. From that time until the present day, this staff has continued to grow in numbers and efficiency, so that to-day, there is Federal inspection of meat and canned goods in all establishments doing an export or inter-provincial trade in the Dominion of Canada.

In the United States, Federal meat inspection was inaugurated in the year 1891, under the supervision of Dr. D. E. Salmon, the first chief of the United States Bureau of Animal Industry, but it was not until the year 1906 that the Bureau of Animal Industry succeeded in having a law passed by Congress which gave them the required authority for the many reforms needed in the packing plants and slaughter-houses all over the country.

Since 1906, conditions have improved very rapidly and every year will show more improvement in the sanitary construction and equipment of our packing plants and slaughter-houses. So that although Federal meat inspection was inaugurated in the United States several years before it was started in the Dominion of Canada, yet I am proud to state that Federal inspection in Canada to-day is on a par with any country under the sun.

It does not seem advisable to attempt to describe in this short paper the methods used in the inspection service, nor to carry you along through the various steps from the ante-mortem inspection to the head inspection, to the visceral inspection, to the inspection of the split carcass on

the hanging rail, and to the final inspection. Suffice it to say, that the work of post-mortem inspection has been gradually improved, as in the early days the inspection depended largely on viewing the carcass and viscera at a more or less long range, during which he was only likely to find the aggravated or extensively diseased conditions, while now he has to make a minute examination of each carcass by palpitating the viscera on specially arranged tables, and by cutting into all the important lymph glands to locate lesions that cannot be detected otherwise, and finally viewing the entire dressed carcass to make sure he has not overlooked anything. There are also special methods of procedure in different animals, such as incising into the heart and muscles of mastication in all cattle killed, in order to detect the presence of cysticercus Bovis cysts in the muscular tissue. You can realize, therefore, that the present post-mortem inspection is a very complete examination; at the same time, it is a practical system, and proceeds by progressive steps, so that the experienced inspector can make these examinations very rapidly and at the same time with accuracy, without impeding or delaying the killing operations.

In addition to the examination for diseased conditions, the present Federal inspection included the supervision and inspection of meats and meat food products during all stages of curing, canning, rendering, etc., during which any tainted or contaminated meat is rejected as a food product and destroyed under the direct supervision of an inspector.

The inspectors have also to see that sanitary equipment and methods are used in the handling of meats and their products; to prevent the use of harmful chemicals or preservatives in meat, or the use of misleading labels on canned goods, etc.

As a further protection to the consumer, samples are taken at irregular intervals of all meat-food products, canned goods, spices, pickles, etc., and submitted for analysis to the Laboratory at Ottawa.

So far, I have only touched on the part of my subject which is under the supervision of the Federal authorities; but it must be remembered, however, that plants doing only a local or provincial trade do not come under this supervision, although a great amount of the meats sold by the local trade come from the large establishments, and therefore bear the Federal Inspection stamp of approval.

Provincial and Municipal Inspection.

This brings us to the other two branches of meat inspection, namely: Provincial and municipal inspection, which are just as important as Federal inspection, and from a public health point of view much more so, as you will readily understand when I tell you that it is a common practice of the cattle dealers and farmers to sort food animals at the farms and country shipping points and in the stockyards, so that those having the appearance of, or even suspected of, being diseased are separated from the others and sold for slaughter at plants where no Federal Inspector is stationed, and where, as a rule, no other inspector will be found, as the shippers have learned by experience that by doing this they will not lose the whole carcass even if it is diseased, for the diseased portions or tubercular lesions will be cut out and the remainder sold and utilized for food, instead of being condemned and made into fertilizer, as would be the case if an inspector had the opportunity of examining it.

You will more readily understand how this can be done, when you stop to think that the majority of our provinces and towns have no system of inspection whatever, and those of our cities which do attempt it are as a rule so poorly supplied with inspectors that the men cannot possibly cover the amount of territory assigned to them. For instance, in our own Province of Quebec, we have absolutely no provincial meat inspection, although there are over fifty provincial dairy inspectors, who visit the butter and cheese factories. Take also our staff of fifteen food inspectors for the City of Montreal, who have to inspect the animals slaughtered in the four private slaughter-houses, also the dressed meats arriving at eight different express depots and on five public markets, as well as in 800 butcher shops and 2,500 grocery stores, 100 meat food product plants.

From these few facts, you will understand the reason why we have been

trying for some time to have all the meats (slaughtered outside the city without any inspection) prohibited from being brought in to the city, but so far we have not been successful. I may say here, that I have visited about fifteen of the largest shippers of dressed meats, and did not find one with a suitable sanitary slaughter-house or place to hang dressed carcases.

The farmer butchers and small dealers also need looking after, the most of their places are far from being up to the standard from a sanitary point of view, and again the small butcher or farmer is not a very good judge of the freedom from disease of the animals he slaughters. The old idea that country-dressed meat and country sausage is preferable to any other kind is a very erroneous one, not only from the fact that it is prepared under the conditions mentioned before (often far from sanitary), but also because the small dealer, not having much to lose, will often take the risk of selling meat that he knows is diseased or otherwise unfit for food.

After considering the question from every point of view, it appears that the only way that we can secure satisfactory meat inspection all over this country is to adopt the methods in force in France, where all meats offered for sale must bear the inspection stamp, showing that the animals have been slaughtered under inspection.

Said inspection is somewhat similar to our Federal inspection; they also have communal inspection, which would correspond with provincial inspection (if we had it), and municipal inspection in the large cities where there are municipal abattoirs. If this plan were followed out in this country, and Federal inspection were supplemented by efficient provincial and municipal meat inspection, with up-to-date sanitary by-laws, we would have very little to fear from diseased or contaminated meat. But under existing conditions, the ignorant or dishonest dealer or butcher has lots of ways of disposing of his goods, as there are lots of restaurant keepers who are not very particular about the quality of the meat they use, as long as they can obtain it at a low price. The great importance of meat inspection is impressed upon us when we think of the different diseases which affect animals used for food, some of which occur only in animals, but there are several which occur also in human beings, such as actinomycosis, tuberculosis, foot and mouth disease, anthrax, rabies, glanders, and the parasitic diseases such as trichina spiralis and taenia solium. The diseases which occur only in animals and which are most frequently met with in meat inspection, are hog cholera, pyaemia, swine erysipelas, urticaria, pleuro-pneumonia, rinderpest, hemorrhagic septicemia, and several others.

There are also processes and changes which take place in meat after slaughter which may render it very dangerous to the consumer, and which are almost unnoticeable to the average person; the danger from this source can only be avoided by a routine inspection of all places where meat and meat food products are prepared and offered for sale.

If time and your patience permitted, I would like to take up this subject more in detail, and show you the great necessity of directing all our efforts toward improving and extending the provincial and municipal meat inspection forces, so that they may be brought as nearly as possible up to the present standard of Federal inspection, in order that those who eat home dressed meats may be as well protected as those who receive the meats we export, which have to bear the stamp "Canada Approved," showing that they have been passed by the Federal Inspection of Canada.

THE INTERNATIONAL CONGRESS OF THE DISEASES OF LABOR

By WILLIAM OLDRIGHT, M.A.,M.D.

Emeritus Professor of Hygiene, University of Toronto, and one time Member of the Provincial Board of Health of Ontario.

Mr. President, Ladies and Gentlemen:

At the time of the completion of the Simplon Tunnel, when arrangements were being made for the festivities and ceremonials at Milan to celebrate the achievement of that great work, it was proposed by the late Hon. Dr. De Cristoforis, a Garibaldian patriot, and a Senator of Italy, that so far as the medical and allied professions were concerned, the most appropriate and humane thing would be to hold a Congress to consider conditions incident to the various trades and occupations predisposing to, or causing, diseases; to consider the causation, prevention and treatment of these, and to secure the adoption and enforcement of preventive measures.

Dr. De Cristoforis was much impressed by the loss of life in the construction of the tunnel, and thought the work of the congress would be to some extent a fitting retributive compensation to the laboring classes. His idea was taken up by his friends, of whom especial mention may be made of Dr. Luigi Devoto, Professor of Medicine in the adjacent old University of Pavia, and of Dr. Carozzi, then of Milan, now Chief Medical Inspector of Labor, with the Minister of Industries, at Rome.

The writer had the pleasure of proceeding from the International Congress of Medicine, of 1906, at Lisbon, to the inauguration of this "International Congress of the Diseases of Labor," at Milan. The gathering was a very interesting one, and marked by most useful and practical work.

At the meeting, it was determined to establish a "Permanent International Commission of Diseases of Labor" (of industrial pursuits), and this has continued, the triennial meetings having been held at Brussels and other cities; the one for 1915 lapsing through the terrible events and feelings brought about between our intended hosts and ourselves by the autocratic and diabolical militarism of the Central Powers. And now it is intended to come to this side of the water, and hold the next meeting at Washington in 1917, should the war be finished in time. And this is one of my objects in bringing before you, and reminding you of, the history and objects of this society at this present meeting of the Canadian Public Health Association, that many of you may go to the forth-coming meeting of the International Congress, and that the two associations may establish measures of exchange and co-operation as in France, Belgium and other countries.

Another outcome of the Congress of 1906 was the establishment of the "Clinic of Labor of Milan," of which Prof. Devoto is the Director; with him was associated Dr. Carozzi, before the advancement of the latter to his position in Rome. The scope of the work of the Congress and Clinic are stated to be "Scientific research and study of causes of diseases in various occupations; dissemination of information amongst medical men, directors, masters and operatives, according to their respective positions; to receive, treat, or keep under observation patients or suspects from the aforesaid diseases, to periodically look after the health of operatives in specially unhealthy occupations, to help on the propagation of industrial hygiene, clinical courses varying in length from two weeks to a scholastic session are held.

A peculiar feature of the work of the Congress and Clinic is that they take up occupations, examine into conditions connected with them, and trace out the conditions of disease to which they give rise; then are wrought out the reformation of unhygienic conditions, and the adoption of preventive and curative measures. They work from the various industries towards the diseases, instead of the converse method.

Another feature is the earnest practical method with which their suggestions and discussions are at once referred to committees who thrash the matters out, and

forward the results arrived at to governmental branches. At the first Congress at which I was present, ministers, or their representatives, attended the meetings, and the resolutions and suggestions were discussed, in some cases by them, and at once went to the various administrative bureaus of the Government, as material which should form the basis of action.

I would be glad to relate some experiences illustrating the practical action of the bureaus of the Italian and other governments, but I do not wish to trespass too far on your time; I do wish, however, to impress upon you the service you can render humanity by co-operating with the International Congress of Diseases of Labor.

The gentleman best known to me as connected with it is Prof. Doctor Luigi Devoto, director of the "Clinica del Lavrro," Via S. Barnaba 8, Milano, Italy; and the official language of the Congress is French.

SANITATION OF A MODERN MILITARY CAMP

JOHN W. S. McCULLOUGH, M.D., D.P.H., D.A.D.M.S.

I THOUGHT it might be of interest to the members of the Association in my remarks upon this subject to briefly outline the character of the newest Canadian Military Camp, that known as Camp Borden.

The Camp in Military District No. 2 is situated in Simcoe County, Ontario, about 60 miles north-west of Toronto. It comprises about 18,000 acres of sandy grass-covered plain, about 10 miles from the town of Alliston and 12 from Barrie.

The area is in general, level. It is traversed by two small rivers, the Pine running in a direction north-easterly, and the Mad from west to east at the northly limit of the camp. The character of the soil is well adapted for the purpose of a camp. It is dry and porous, admitting of excellent drainage. It is well removed from low-lying lands, and any large urban population. There is an absence of marsh or stagnant water and its elevation from 750 feet to 850 feet above sea level permits of excellent drainage.

Transportation.

Transportation is an easy matter as two railways, the Grand Trunk and Canadian Pacific Railway have stations inside the camp limits, and within a quarter of a mile from headquarters. The country roads are gravelled and above the average.

Water.

The one indispensable requisite of a satisfactory camp is a pure and adequate supply of water. This is thoroughly well met in the camp by artesian wells, six in number, giving a daily supply of one and three-quarter million gallons. During the month of July of this year, the weather was unusually hot and dry, yet 35,000 men were able to use all the water they required without materially diminishing the outflow from the wells. The water is pumped by means of two electrically-driven pumps, with a capacity of 1,000 gallons a minute. The water is pumped to two 100,000 gallon tanks placed at an elevation of 130 feet above camp level, thus providing adequate pressure. The water is practically sterile, of moderate hardness, clear and cold.

Sewerage.

Disposal of sewage and other liquid wastes is provided for as follows: Each battallion has 5 per cent. of flush closets of the "range" type placed in stucco-covered buildings.

A full complement of showers is provided for both officers and men, separate latrine and shower buildings being supplied to each unit. The sewers are deeply laid being of 12 in. x 15 in. and 18 in. glazed tile.

* Read at meeting of Canadian Public Health Association, Quebec, Sept. 13th, 1916.

Kitchen liquid waste is all passed to the sewers, each kitchen being supplied with a large sink and each unit with a screened concrete saucer into which garbage liquids are drained.

The sewers, of which there are several miles in the camp, lead to a large sedimentation tank adjacent to the Pine river. This tank, which is one of the finest construction I have seen, is about 30 feet deep, 80 feet by 60 feet interior measurement, and having a capacity of about 200,000 gallons. The effluent is to be chlorinated.

In certain outlying parts of the camp, such as the Musketry School, the School of Infantry, where sewage is not provided, buckets are used. These are placed in wired latrine buildings, and the contents removed daily or oftener by the sanitary contractor, and conveyed to a distance of about a mile from any part of the camp in use. In the trenches where mimic warfare is carried out, buckets are used, and the most rigid supervision of sanitary detail corresponding to that required at the front is carried out. A certain amount of wood has to be used. In England, the Horsfall incinerator is used for the same purpose, about one-hundred weight of coal being used as fuel each day. Before these metal incinerators were established, the various units had constructed a variety of styles of incinerator made of sods, concrete or brick, which are familiar to military men. In connection with the type now in use, several of the units have established coils inside the incinerator for the purpose of heating water, either for the purpose of bathing or for boiling the dishes.

Kitchens.

The kitchens, of which there are four to a battalion, with an extra one for each brigade headquarters, are constructed in groups of two. They are wire-screened from about three feet of the ground, and have spring screen doors. In some cases the floor is of wood, in others of sand and gravel, and in some of concrete.

Solid Wastes.

Non-combustible material such as tincans, bottles, wire, etc., are removed by the camp sanitary contractor to an area away from the used portion of the camp. They are sprayed with oil and incinerated at intervals. Bones are placed in securely covered barrels provided for the purpose, and removed by a party who purchased them by tender. Manure from the stables of each unit is placed in covered ventilated receptacles and removed once a day. Kitchen waste, including remnants of food, peelings, paper, boxes of wood or pasteboard, are destroyed in type of incinerator called the "Reid." This is a metal box about four feet in each diameter lined with firebrick, and which if handled with a little care gives satisfactory results.

Refrigerators.

Many of the units have constructed dugouts in which meat and other foods are kept, and in some cases refrigerators have been placed, thus insuring proper preservation of butter, milk, meat, fruit, and other perishable goods.

Dishes.

Because of the fact that most of the communicable diseases, such as diphtheria and influenza, scarlet fever, measles and meningitis, are conveyed from mouth to mouth, the common cup has been abolished in canteen, and if used at all these articles, as well as all dishes and kitchen utensils used in common are required to be boiled after using. We consider this means of prevention so valuable, especially when troops are in barracks, that it is very strictly enforced.

Communicable Diseases.

The isolation and quarantine of each communicable disease is strictly observed to both cases and contracts. It is of interest in this connection to observe how easily affections, such, for example, as meningitis or diphtheria, are controlled among soldiers in contrast to that of civilian life. In the latter, the public, and not infrequently the physician in attendance, fail to notify these diseases in order to avoid quarantine; but the medical officer of the battalion, as well as both officers and men, do not want such cases in their lines, and get them out as soon as possible. The result is that first cases of this character are promptly diagnosed,

notified and isolated. The result is that the incidence of the common communicable diseases are less in military than in civil life. But there are a few communicable diseases among soldiers, the record of which we sanitary officers are not proud of. These are syphilis, gonorrhoea, and pneumonia. In ten months, including from October, 1915, to July, 1916, in say some 50,000 men, we had over the whole of M. D. No. 2, 1,439 cases of communicable disease. These included 90 cases of pneumonia, 51 of scarlet fever, 261 of measles, 47 of diphtheria, 96 typhoid fever, 90 of syphilis, and 550 of gonorrhoea. There were 23 deaths, and of these 18, or 78 per cent., were from pneumonia, which has displaced typhoid fever in point of mortality in military camps. While gonorrhoea and syphilis do not compete with other communicable affections in mortality, the remote affects are so serious that prevention in all three affections are engaging the earnest attention of our sanitary and medical officers. Cerebro spinal meningitis does not cause us any great concern, and while we had 26 cases of typhoid fever all during the winter months, 86 of these occurred among uninoculated troops in Parry Sound, and were due to a polluted water supply.

Typhoid Inoculation and Vaccination.

All troops not already inoculated and vaccinated, receive their injections of mixed typhoid and para-typhoid vaccine at intervals of seven days, the small pox vaccination being given on the day preceding the last inoculation. The value of typhoid inoculation has been fully justified by the low typhoid rate among our troops at the front.

Laboratory Facilities.

A laboratory is established both at the Base Hospital in Toronto, and at Camp Borden. The one at camp is used for water examination, inoculation and vaccination, and that of Toronto for complete bacteriological and pathological work.

Blankets.

All blankets are sterilized at intervals of two weeks, facilities being provided for doing the blankets of two battalions per day. The blankets are subjected to live steam for twenty minutes, and then to dry heat for five minutes or longer as required. Hot water and cold showers are also provided at the fumigator for the use of men affected with vermin.

The slides shown herewith illustrate some of the camp devices and surroundings. In regard to Camp Borden, I desire to say that from the statements of medical officers who have had a varied experience here and elsewhere during the war, it is quite certain there is no other military camp in existence which affords such varied facilities for the comfort of enlisted men. The low sickness rate in this camp, the exceedingly low mortality, the general physical appearance of the men is a sufficient answer to the unfounded criticisms of this Canadian camp.

CARRIERS OF DISEASE

BY SIR JAMES GRANT

AT NO PERIOD in our history has the subject of carriers of disease attracted a greater degree of interest than at present. It may be divided into two classes, those at home and those abroad. Travellers abroad are in new, and often unknown, surroundings, and risk of infection all the greater. Travellers at home, en route, by train or boat, may contract disease from unknown germs, to which subjected. Recently, a case of well-marked diphtheria developed in a farmhouse near Ottawa. The servant became alarmed, and left after two days' employment. A week afterwards this same servant engaged with a family in a healthy section of Ottawa City, and in one week a child developed diphtheria, where this disease was not known previously, and in severe form, doubtless the result of germs, carried from the throat, or nose, of first case. Under such circumstances the health officer should have been notified, the servant isolated and disinfected, to prevent spread of the disease. Fully thirty-five years ago, Ottawa district and city experienced a severe and most fatal form of diphtheria, many cases of a malignant character, in which large vessels of the throat sloughed in a short time, sudden death from hemorrhage following. This epidemic was brief in duration, and no specific cause of its origin could be found.

The accidental uncovering of some Indian mound, or grave, of past time, in agricultural operations, may have unearthed a pent-up virus, which spread this disease in malignant form.

In 1832, my father, Dr. Grant, Glengarry, Ont., arrived at Quebec from Scotland, when a severe epidemic of cholera prevailed. Friends he met on arrival, died suddenly of collapse, and in Montreal he noted many sudden deaths of a like character. The sea voyage was six weeks with my parents, in a sailing vessel one year old. No Atlantic steamers or submarines in those days, eighty-five years ago. Sanitary science then in infancy, and little known of preventive medicine. To-day ships and immigrants are inspected thoroughly, and bacteriology turned to practical account.

The stools from cholera cases are said to be free from the spirillae in from 12 to 14 days. Cholera, once under control, does not usually appear again, unless brought from different parts by carriers. The progress of science is remarkably in evidence at present in the treatment of cholera; 150,000 Serbians recently inoculated with Wright's Prophylactic Serum, to combat this disease, chiefly indicated by lowered blood pressure, cessation of kidney function, and concentration of blood. Loss of vasomotor control of capillaries in intestinal canal, resulting from absorption of endotoxims, a drainage of blood fluid, characteristic rice water stools, and vomit. Collapse is the most important phase of this disease, now counteracted by a method of continuous intravenous saline transfusion, the results most encouraging. In cholera, the contagious element is present in the stools, and by perfect disinfection an outbreak of this disease can certainly be suppressed.

Jaundice Epidemic.

In 1878 an epidemic of jaundice developed in Hull City, opposite Ottawa, of mild character, presenting no serious complications. The jaundiced condition of eye, and cutaneous surface, complete, and urine tinged with bile, occasional indications of depression, loss of appetite, and slight nausea at times, owing to disturbed digestive functions from proximity of over-loaded liver, with bile. Administered salines freely to unload the liver and alimentary canal. In a few weeks this epidemic disappeared, leaving no serious consequences. At first I thought it was caused by phosphorus in match-making operations, Eddy factory. Such, however, was not correct, as I detected cases in families not engaged in factory works. Two other epidemics of jaundice I am aware of in Canada: one in practice of Dr. Stanley, Lambton County, Ont., twenty-

eight years ago. Fully one hundred cases came under his observation, chiefly in the country, and amongst children, catarrhal in character, not serious, no deaths, and some cases of jaundice observed in adults. A third, in the practice of Dr. Connolly, Renfrew, twelve years ago. Fully one hundred cases noted, three and four in one family, chiefly children—catarrhal in character, occasional slight fever, extended over a period of three months. No deaths.

In 1896, Dr. Weil, of Heidelburg, Germany, described four cases of a peculiar form, of acute infective disease, characterized by jaundice, by most Germans considered hitherto unknown. The exact nature of this epidemic is not yet decided, although Prof. Jaeger discovered an organism, Bacillus Proteus Fluorescens, in the urine and organs, in several cases.

The House Fly.

There are few more active carriers of disease by living germs than the house fly, and particularly in infant life. Tuberculosis, cholera and tropical sore also carried freely. Not only rural inhabitants are exposed to this serious risk of disease, but military camps suffer in a like degree. In our warm season the fly seeks the best possible camping ground for breeding purposes, chief being a fresh heap of horse manure, and the dust bin for depositing their eggs. About two weeks will accomplish the life history of the maggot, generations following in quick succession, until kitchens, camps and dwellings actually swarm, a perfect fly multitude. A chief object in view is to tap the supply at once, and wipe out the hibernating larvae. The serious mortality in infant life is chiefly due to the house fly depositing its virus on the lips of infants, and thus developing fatal intestinal diarrhoea, and the manure heap is the chief object to guard against. Hence the vast importance of thorough sanitary regulations in city and country life.

Dr. McCullough, Registrar-General, Ontario, states the death rate in children under one year of age, in this Province, is 140.3 per 1,000 in our chief cities, 1914.

The most successful method of insect destruction is to surround the manure heap with a ring of dry straw, where mature larvae migrate to pupate, the whole swept up twice a week, and cremated with the straw. All material in dust bins and sanitary pails, suitable for fly breeding, should be carefully covered, to prevent the fly depositing eggs; fully 90 per cent. of house flies discharge their eggs, and larvae, in horse manure. The ordinary stable fly and the Tsetse fly of South Africa, so fatal in sleeping sickness, are closely related, and active factors in carrying germs of disease. The house fly is an absorbing subject, upon which Dr. Hewitt, Chief Entomologist of Canada, has written an able work. Filth, flies, and infective diarrhoea of children are closely associated. Too close attention cannot be given to this subject, to guard, as far as possible, the lives of a coming generation, of which the young blood of Canada is in such demand, in the interests of King and country.

A new weapon for destruction of the fly is Heppell's Spray, recent in discovery, and has won golden opinions.

Infantile Paralysis.

Infantile paralysis has made its appearance in New York City, and at a few points in Canada sufficient to excite a degree of alarm. From careful statements by Dr. Flexiner, of the Rockefeller Institute, New York, and Deputy Commissioner Billings, this disease is spread by personal contact of one child with another, as in whopping cough and measles, and children transmit the disease while in period of incubation. Adults are carriers to a negligible extent, if at all. There have been no epidemics of Poliomyelitis so far recorded in Canada. Only occasional cases, in widely scattered locations, and treated successfully. Children are the usual victims, although no age is exempt, and the most alarming feature is the deformity likely to follow for life. Experts are vigorously enquiring into the cause of this disease, supposed to result from a germ, so small and attenuated that it has not yet been defined. It is more robust than the virus of rabies, and shows no diminution, in virulence, in passing through several bodies. A remarkable fact is that the germs, after passing

through 25 separate series of monkeys, were as powerful as ever. It is beyond doubt a living organism. The immediate cause of death is usually by paralysis of the respiratory function, with painful slowness, until death takes place. The drug Eurotropin, antiseptic in action, has not proved very satisfactory as a curative agent, and preventive serum of doubtful utility. The house fly is said to play a conspicuous part in the spread of this disease. The infectious agent enters the body chiefly through mucous membrane of throat and nose, where the virus is known to exist. Kissing, coughing and sneezing are likely to spread the disease. Mother and nurse must exercise great care, in wiping off secretions of children, not to spread the disease, by infected material, on their fingers. This disease has been detected in homes of food vendors, chiefly through uncooked food.

A special advisory committee on bacteriological studies of cerebro-spinal fever, during an epidemic of 1915, by the Medical Research Committee of Great Britain in 1916, reported: "It may be concluded from these facts that the direct source of infection in cerebro-spinal meningitis is usually to be sought, not in another case of the declared disease, but in the undeclared carrier, the transfer from pharynx to pharynx of an organism, in coughing and sneezing, such as in influenza and common catarrhs.

Of all the carriers of disease, none surpass the Bacillus Tuberculosis of Koch. It flits through the atmosphere on a particle of dust, a perfect aeroplane, carrying 15 or 20 bacilli at a time, seeking some weak constitution on which to unload its activity, and thus establish a new colony of tuberculosis. Systems, strong, healthy and vigorous, are not attractive under such circumstances, and thus escape an attack of the enemy.

The better showing in health in Canada is the result of vigorous action in sanitary conditions in congested districts. Our present infant mortality is one of the most serious problems. The present tragic epidemic of infantile paralysis in New York is ample warning to our cities. To-day we fully appreciate the value of sanitary surroundings, the outcome of progressive hygiene in our schools and colleges. A thoroughly clean house promotes health, comfort, happiness and longevity.

"Infantile paralysis," states Prof. Arnold Netter, a member of the Academy of Medicine, Paris, and an authority on this disease, "is a malady as old as the world, and which has long been known, in the form of sporadic epidemics, affecting adults, as well as children. Thousands were affected by this disease in Sweden in 1905, and France suffered in turn in 1909 and 1910, and even as late as 1914. In the treatment of this disease, injections of serum derived from subjects who have been previously affected by the disease, were employed, and the results were excellent, when the disease could be treated at the outset of the attack."

Dr. Matthew Hay, of Aberdeen, Scotland, has had considerable experience in poliomyelitis, and states, though recognition of carriers, in cases, is difficult, prevention of the disease is not, and that the virus in nasal and buccal cavities is easily killed, by a dilute solution of permanganate of potash (1 in 1,000), washing out these cavities frequently with this solution. (Lancet, August, 1916.)

Typhoid.

Ottawa City experienced two epidemics of typhoid fever, one in 1886, and the second in 1912. Impure supply of water chief source of trouble; both epidemics severe in character, and attended by considerable fatality. Ottawa City is now entirely free from typhoid, as water supply is chiefly from numerous surrounding springs, temporary in character, until such time as the Gatineau Mountain lake system of water supply is placed in operation. It is a well-established fact that every city which permits conditions to continue, producing a high typhoid rate, is responsible for an output of typhoid carriers, promoting the spread of that disease. This entire problem is undergoing a thorough scrutiny by sanitarians, a marked change for the better is strongly in evidence. Few scientists have devoted greater attention to the study of the transmission of typhoid fever than Dr. Budd, of Bristol, Eng., in 1841, at which time he produced evidence of remarkable

penetration in the actual interpretation of zymotic conditions. He defined that typhoid fever was contagious, of a specific nature, and in 1873 prophesied the bacillus, which was discovered fully eight years subsequently, and that typhoid fever only propagates itself, and no other. He recognized the period of incubation of the disease, the immunity of those who once had it, and the liability of those living in the same envoronment to contract the disease; also that the intestinal discharges were chief factors of its spread. Dr. Budd laid great stress on the fact that safety resulted from disinfection of the discharges, isolation of typhoid cases, careful washing of attendants' hands, and boiling of both milk and water. Golden rules, unfailing in practical results. Typhoid, which in former years was a most insidious enemy, is now reduced to a negligible factor, chiefly by preventive vaccination. In the Spanish-American war and the Boer war, more deaths were the result of "baccilli" than "bullets." In the Russo-Japanese war, progressive scientists grappled nobly with this problem. Our Canadian army was most carefully and prudently protected by anti-typhoid vaccination, and results charmingly in evidence. Strict supervision of the health of the army is necessary, as well as most careful inspection of the fighting soldier, to guard against this disease. The record of the British army in England and France, reported by Sergeant-General Keoch, is most remarkable, only thirty-six cases of typhoid last year. Next in importance to typhoid fever is yellow fever. Assistant Sergeant-General Carter, of the United States service, reported ably on immunity to yellow fever. After years of practical experience, he considers the immunity conferred by an attack of yellow fever to be permanent. The evidence against the existence of human carriers in this disease is stronger than against the occurrence of secondary attacks (London Lancet, July 31st, 1915). The mosquito is known to play a conspicuous part in this disease. The marvellous power of petroleum has actually wiped out the carriers of disease from many a pregnant marsh, and established a degree of health truly remarkable in this nineteenth century.

In the United States, Dr. Sawyer, Director Hygienic Laboratory, California, reports carriers of typhoid are common and dangerous. Fully five per cent. of cases of typhoid fever remain carriers. A carrier, as waiter or cook on a dining car, might infect the food of many passengers. Present care in ice handling and drinking water tends greatly to lessen infection. Regulations in trains and boats on the use of paper drinking cups, replacing ordinary drinking glass, lessens greatly the prospect of transferring germs from the mouth of a diseased to a healthy individual. Under like circumstances, towels should be for one person only. No person with a suspicious history should be employed where a carrier would be dangerous. In Mexico, the present special danger to the Republic, typhus and ordinary lice are closely associated parasites of a germ-caused disease. Kellogg, of Stamford University, California, states that the ordinary bedbug is strongly suspected of spreading, by its bites, half a dozen serious diseases caused by various bacilli and sporozoa. It is a cosmopolitan insect, very prolific, three or four generations yearly. Bubonic plague is disseminated among rats, and from rats to man, by fleas piercing the skin, sucking the blood, and distributing the bacilli of that plague. Lice, bedbugs and fleas have not yet been proved to be the incubators of any germ disease, as the mosquito is for the malarial parasite. Any insect that associates closely with man, sucks his blood, and eats his food, returns the compliment by imparting germ-caused human disease. Insects follow man in worldly migration, transporting as a special duty insect disease germ carriers.

In conclusion, it gives me pleasure to quote the charming sentiment of the Bard of Scotia, Robert Burns, on his impressions of insect life, the outcome of a "Louse on a Lady's Bonnet":

"Ha, where ye gaun, ye crawlin' ferlie,
Your impudence protects you sairly,
O' wad some power the giftie gie us,
To see ourselves as others see us,
It wad frae monie a blunder free us,
And foolish notion."

THE Fifth Annual Congress of the Canadian Public Health Association held in Quebec City on Sept. 13 and 14, was a decided success. The attendance, the papers, the hospitality and the weather all combined to make it so. Delegates were present from points as far apart as Edmonton and Halifax, and addresses given and papers read by many well-known Canadian Public Health workers.

It was a great disappointment that our President, Dr. Hastings, was prevented attending by illness, but apart from that everything ran very smoothly, and much of the success of the meetings was due to the untiring efforts of our new President, Dr. Page, and of Dr. Nadeau, of Quebec. We were honored by the presence at our Convention of His Honour the Lieutenant-Governor, and of the Premier of Quebec, both of whom delivered fine addresses at the different sessions at Laval University.

It is unnecessary to mention here the special papers read at the various sessions, as their contents will be published in the Journal from time to time; but they were upon subjects of vital importance to Canadians and were well worth hearing. The meeting of the Canadian Association for the Prevention of Tuberculosis and the sessions of the Sanitary Officers' Association of Quebec during the same week did much to increase the attendance and interest of the meetings. The following officers were elected for the ensuing year:

Hon. Pres., Dr. F. Montizambert, C.M.G., Ottawa.

Pres., Dr. J. D. Page, Quebec.

Vice-Presidents, Dr. W. H. Hattie, Halifax; Dr. Hutchinson, Westmount, Que.; Dr. Underhill, Vancouver.

Sec., Dr. J. G. Fitzgerald, Toronto.

Treas., Dr. Geo. D. Porter, Toronto.

It was decided to hold the next Convention in the city of Ottawa.

THE Fifteenth Annual Meeting of the Canadian Association for the Prevention of Tuberculosis was held in the Hotel de Ville, Quebec, on Sept. 12th and 13th, under the presidency of Senator J. W. Daniels, M.D., of St. John, N.B.

The delegates were the guests of the city of Quebec, and their stay in the ancient capital of Canada was made most pleasant by the many attentions showered upon them by the citizens and particularly the medical profession of the city.

The principal subjects discussed on the first day were, "Why notification of tuberculosis is necessary," "Reasons why open cases should be isolated," opened by Drs. P. H. Bryce and J. H. Holbrook.

At the evening session, an official address of welcome was delivered by His Honor Sir Evariste Blanc, Lieutenant-Governor of the Province of Quebec, whose earnest words bespoke his hearty sympathy with the work of the association. It was his first opportunity to speak in public since the disaster of Monday, when ten men lost their lives in the fall of the central span of the great Quebec bridge, and he took advantage of the occasion to extend his deepest sympathy to the families of those carried down with the enormous structure.

The public address on tuberculosis was given by Prof. J. E. Dube, of Montreal, who gave a most excellent exposition of the present state of our knowledge of the disease, and of the practical methods of application of means of prevention.

Dr. David Townsend of the Jordan Memorial Sanitarium, River Glade, N.B., gave a paper in which he presented an earnest plea for the early diagnosis of tuberculosis as the great factor in securing permanent results in treatment.

Prof. Arthur Rousseau, M.D., Professor a l'Universite Laval, Quebec, presented a most excellent paper upon the place of the dispensary in the anti-tuberculosis campaign, in which he emphasized his opinion that every general hospital should have its tuberculosis clinic, which with its visiting nurse would prove a most useful adjunct in the discovery of open cases, and would soon lessen the number of cases of infection.

Dr. F. C. Neal, of Peterboro, in a most excellent paper, outlined the methods of anti-tuberculosis work in a large town, particularly as developed in his own city. He paid a tribute to the work of the visiting nurse, and indicated how their organization had secured the best co-operation of the citizens and of the health department. The paper is a valuable one, which should be or great service as a guide to the development of similar anti-tuberculosis measures in other towns.

At the close of the meetings, the joint session of the Canadian Public Health Association and the Services Sanitaires de la Province de Quebec began and continued two days.

Among those present from Ontario, we noticed Dr. Charles D. Parfitt, Gravenhurst; Dr. R. W. Bell, Dr. Adam Wright, Toronto; Major J. W. S. McCullough, Capt. Fitzgerald, Camp Borden; Dr. Helen MacMurchy, ex-Controller McCarthy, F. A. Dallyn, C.E., Dr. Naylor, Dr. J. H. Elliott, Toronto; Dr. F. Montizambert, P. H. Bryce, Race, Sir James Grant, Dr. S. H. Holbrook Hamilton, Ottawa; Dr. F. C. Neal, Peterboro.

Much of the success of the meeting was due to the untiring efforts of the energetic Secretary, Dr. Geo. D. Porter. At the close of the last session, on Wednesday, the delegates were motored to Kent House, Montmorency Falls, to a luncheon as guests of the municipal council. It was a delightful day, the roads were at their best, and all had a glorious view of this wonderful waterfall, where the river drops a sheer 280 feet into the St. Lawrence below. All have carried away most pleasant memories of the days spent in and about the city founded by Champlain.

Fifteenth Annual Report of the Eexcutive Council of the Canadian Association for the Prevention of Tuberculosis.

THE Fifteenth Annual Convention of the Canadian Association, which was to have been held in Vancouver last year, was reluctantly postponed owing to the outbreak of the war, and the consequent departure of a number of our most active members.

Our Association, however, published its annual report in both French and English. This is a volume of 250 pages, comprising the reports from the various local societies, reports of the secretary and treasurer, revised directories and other useful information, and over ten thousand copies were distributed.

In reviewing the work of the past year it is encouraging to note that in spite of the war, and its many drawbacks to this and other great movements, very considerable progress has been made.

Practically all the institutions have been progressing steadily. During the year no less than five new institutions have been opened. Four have been enlarged, while the building of another has already begun.

This year there has been organized in Toronto the Hospital Tuberculosis Clinics, in which four hospitals have united in co-operation with the Board of Health for tuberculosis work entirely. A number of open-air class rooms have been established for those children who have been in summer time having the advantages of the Forest Schools, and while in some districts economy called for the dismissal of their visiting nurse, in other parts more have been added to the staff of those already doing anti-tuberculosis work.

In Toronto also the Medical School Inspectors examine for tuberculosis all children having a history of exposure, and the Board of Education has established two Forest Schools for delicate children in the summer, and two open-air class rooms for use in the winter. These children are not a menace to others, but when suffering from open tuberculosis they are excluded from school and sent to Weston Hospital for children, or visited in their

homes by the City Board of Health nurses.

Among the new institutions opened during the year the St. John Hospital for advanced cases was of prime importance, as was the opening of the Municipal temporary hospital in the City of Quebec, for the proper care of the advanced cases is one of the most necessary steps to be taken in the prevention of the spread of tuberculosis.

We are pleased to note that the Prince Edward Island Sanatorium and the Waterloo County Sanatorium have both been completed and are now ready for patients. Two private sanatoriums have been opened—the Calydor at Gravenhurst, Muskoka, which should prove most useful in showing that tuberculosis can be properly treated in Canada without the waste of energy often expended in long and distant travel in a foreign land. The Sunnyview, at Kamloops, B.C., another private sanatorium, has also been opened during the year.

The Minnewaska Sanatorium at Gravenhurst has been enlarged to double its former capacity for the purpose especially of looking after returned tuberculous soldiers. The Muskoka Free Hospital has also added two pavilions for the same purpose, and the Sanatorium at Brantford has also added a new pavilion. The Laurentian Sanatorium has also arranged for an increased bed capacity, especially for returned soldiers, and the work on the fine new hospital for advanced cases in Hamilton is nearly completed.

In 1908 there were only 250 special beds for the tuberculous available in all Canada. In 1911 there were 900, while now we have 2,000 throughout the various special hospitals and sanatoria throughout the Dominion.

The necessity for this increase, which is as yet far from sufficient, is most apparent, and as the number of returned soldiers who have developed tuberculosis at the front are added to the number already with us, the need for accommodation will be still more apparent.

Interest in the more chronic diseases, such as tuberculosis, will naturally give place for a time to a greater attention to those more acute infections, such as typhoid, typhus, dysentery, tetanus and septicaemia, which are always threatening our armies in the field and in the trenches. It must be borne in mind, however, that the soldier's very strenuous life, with its hard campaigns and prolonged exposures, to say nothing of the injurious effect of inhaling noxious German gases, will inevitably leave many of them in just that physical condition so favorable to the inroads of tuberculosis. Col. Primrose has already reported from the front that in a large percentage of the cases examined, which proved to be tuberculous, it was obvious that an active condition had been engrafted upon a healed lesion. "It is not surprising," he says, "that there is danger of pulmonary tuberculosis developing in those who are predisposed thereto."

The measures of relief instituted in the past will, therefore, be most useful for the future, when we may look for a larger number of tuberculous amongst us than we had before. This has already been demonstrated by reports from Switzerland, where it is said "twenty-five hundred tuberculous prisoners will shortly arrive there from belligerent countries for special treatment. In France they are also providing pavilions on hospital grounds for the tuberculous soldiers, while in Canada an increasing number of returned soldiers are being received in our institutions because of affections of the lungs.

While sanatorium treatment of tuberculosis is to be advised for all who can possibly avail themselves of the advantages which it offers, it must not be supposed that the disease cannot be successfully treated in the home, provided that ordinary comfort and the necessary care are there procurable. For those who are compelled to remain at home, education, as well as medical care and nursing, is required. This work of education must always continue, for without creating an intelligent interest in the public mind, and securing their co-operation, no permanent improvement can take place. This, of course, is the work for which our Association was organized and now stands.

It might be interesting to quote from one or two recent editorials regarding our work. The British Journal of Tubercu-

losis, of July, says: "At a time when Canadians are accomplishing great deeds for the protection of the Empire, it might be well to remember that in no other part of our overseas Dominions has the Anti-Tuberculosis Campaign been more efficiently conducted."

An editorial from "Printer and Publisher" calls attention to our report and suggests that it offers suggestive material for editors throughout the country for reading material for the public, concluding: "If the Government of Canada finds it worth while, on the score of economics and humanity, to grant ten thousand dollars a year to the work of fighting consumption, then local newspapers will also find it worth while to devote some attention to the cost of tuberculosis to the communities in money, happiness and morals."

A large number of other Canadian editorials during the past year have also called attention to the importance of the work of their Association.

At the last annual convention of the Canadian Public Health Association a resolution to the Prime Minister was passed, in which the following occurred: "We wish to place on record our appreciation of the work of the Canadian Association for the Prevention of Tuberculosis, which your Government has so ably assisted. Since its formation you will be pleased to learn that tuberculosis has been materially lessened in Canada."

As the Red Cross activities have recently been monopolizing the energies of those upon whom we particularly depend for advancing the anti-tuberculosis work, it was felt that a number of engagements for lectures and organization work, previously arranged for, were better postponed for a time, and this part of our work has suffered temporarily in consequence. Our work, however, has been placed, by request, before a number of important educational institutions during the year.

In connection with lectures it might be well to point out that while our Association was the first in this field, and at one time was the only organization doing this work, now there are others, and the office of this Association is constantly receiving requests for material for lectures from local doctors, nurses, social workers and the clergy, and so we are always supplying the ammunition, if not actually on the firing line. This work therefore is now much more extensive than ever before. The demand for our literature is steadily on the increase. During the past year we have, as already mentioned, published our Annual Report in English and French, and have already distributed over 10,000 copies. We have distributed some 10,000 copies of pamphlets on ventilation. The requests for literature come from the most obscure country districts as well as from public libraries and social workers all over the country. Over 60 public libraries in the United States have requested copies of our reports.

Among the various requests for information addressed to this office were letters from the military authorities in the Second Division regarding sanatorium accommodation in Canada. One came from the International Harvester Company, of Chicago, along the same lines, in connection with the placing of their Canadian workmen afflicted with tuberculosis. From the University of Denver we received a request for a complete set of our literature for the Health and Welfare Exhibit; a similar request from the Provincial Health Officer of Nova Scotia for exhibits there; requests for literature for the newly organized Association of Tuberculosis Clinics in Toronto, and for parcels of literature from organizations in different parts of the country.

Our Association has frequently received requests for some form of tuberculosis exhibits to be used in instructing school children, or to be used at health lectures, at county fairs, and at various educational conventions. We have, therefore, decided to prepare a number of duplicate sets of these exhibits, which can be placed in small parcels and sent wherever requested. These should prove of great assistance in teaching this important subject, and also add greatly to its interest. Such exhibits will do away with the necessity of lantern slides, which cannot always be conveniently used. These exhibits will comprise maps, charts, statistics and photographs helpful in explaining the disease, its prevalence and methods of prevention, and as we hope to arrange and catalogue them, so that a layman can easily understand and explain

them, they should prove a great advance in our educational work.

We regret to record the death this year of Dr. Bruce Smith, Inspector of Hospitals for Ontario, and for years one of the active members of our Executive Council, and one whose public addresses and endeavors along educational lines have always been so helpful. One of his latest reports dwells very clearly upon the necessity for proper housing in the eradication of tuberculosis.

"In our fight against this disease, we must not forget," as Dr. Hattie has pointed out in the Nova Scotia Bulletin, "that we are yielding up to it a sacrifice of life which far surpasses that which has as yet been required of us in the war zone, and which is not at all likely to be exceeded by our participation in the great struggle for the liberty of nations. There must, of course, be no relaxation of our effort to bring the war to a successful issue, but we must not entirely neglect this other foe, which is so steadily and consistently depleting our population and preventing us from properly developing our resources."

BOOK REVIEWS

CANADIAN POETS—By John W. Garvin, B.A.—McClelland, Goodchild and Stewart, Toronto—$2.00 Net.

The war, occurring at the close of half a hundred years of Confederation, seems to punctuate every feature of our national life. Before we enter a new and enlarged stage of our imperial career, it is fitting that our activities should all be summarized and reviewed.

That Canada has an authentic native poetry which would do honor to the genius of any land is fully demonstrated in this volume. The author-editor published, a few years ago, the collected verse of Isabella Valancy Crawford. This service was enhanced in value by the fact that the gifted poet was then deceased, and might easily have been forgotten had not Mr. Garvin thus found her a permanent audience and secured her immortality.

It is even a greater service that our Editor contributes to his native land in the present volume, where he reveals himself not only as editor, but also as biographer and critic of distinguished ability, and *facile princeps* among Canadian anthologists.

Fifty poets are included, with excellent portraits of all. Some of these latter are reproduced here for the first time, and have unusual interest. One of these may be instanced. It is a sketch of Norah M. Holland, made by the father of her kinsman, W. B. Yeats.

The names are here of all the Canadian poet-immortals, such as Mair, Crawford, Lampman, Campbell, Johnson, Wetherald and the Roberts-Bliss family, five of whom are included in this volume. Here are also many poets of the newer age, such as Service, Sullivan, Norwood, Isabel Ecclestone Mackay, Virna Sheard, Katherine Hale, Marjorie Pickthall, Watson, McInnes, Laura E. McCully, etc. These are shown not to be inferior to their predecessors, either in message, force or beauty. The work contains also poems from recently discovered authors in many of whom the divine spark unquestionably appears.

A high standard has been set in selecting the poems. Thought, feeling and beauty, the essential insignia of all true art, distinguish the choice in almost every case. Wherever the claim to artistry is meagre, the distinctive message and its emotional appeal to the highest instincts makes inclusion imperative.

Some of the articles have appeared in this Journal, but have all been strengthened by revision, the portraits have been enlarged and in many cases exchanged for later ones. The selections of poetry have been revised and extended so that in most cases a new group is presented and in every case the selection has been enriched.

The editor has collected many fugitive poems from the press not yet published in any collection of verse. Some of these are verses of rare beauty and merit.

In the current of a young nation's life we rush unheeding past many a monument of beauty and inspiration that would by their contemplation exalt the finer and

nobler elements of our nature. Some of our poets with genuine claims to recognition can scarcely be said to have received it in the past, and it is to be hoped that this volume will help to correct that injustice.

At the risk of appearing to be arbitrary I shall present one little lyric from this notable book. It should not be necessary to give the author's name to an educated Canadian.

CANOE SONG AT TWILIGHT

Down in the west the shadows rest,
Little grey wave, sing low, sing low,
With a rythmic sweep o'er the gloomy deep
Into the dusk of the night we go:
And the paddles dip and lift and slip,
And the drops fall back with a pattering drip:
The wigwams deep of the spirits of sleep
Are pitched in the gloom on the headland steep.
Wake their silence as you go,
Little grey wave, sing low, sing low!

From your perch on high where the clouds go by,
Little white moon, look down, look down,
'Neath night's shut lid the stars are hid,
And the last late bird to his nest has flown.
The slow waves glide and sink and slide
And rise in ripples along the side;
The loons call low in the marsh below,
Night weaves about us her magic slow,—
Ere the last faint gleam in our wake be gone,
Little white moon, look down, look down!

Art.

This book, thoroughly Canadian, entirely wholesome and at the same time comprehensive, should be authorized for use in our schools and colleges, so that the shameful ignorance of Canadians anent the poetical achievement of their own land may pass with the present generation.—W. T D.

CHRISTIANITY AND SEX PROBLEMS —By Hugh Northcote, M.A.—F. A. Davis Company—$3.00 net.

The writer of a book on this theme, whether he be a doctor, a lawyer or a clergyman, should certainly be genuinely a Christian. If he be a Christian in the truly great and Christly meaning of the word, it is probably better if he be none of the other three. The evidence that our author is a theologian is found chiefly in the fact that he quotes copious notes from the patristic authors. To a modern who has no theological basis, and no special respect for the ancients who take themselves so seriously, and fling cartloads of advice down the corridors of time—you have heard of those corridors—these quotations are a nuisance, for they stop your reading of very good stuff by the author, and compel you to read some very poor stuff by some dead one whose opinion on the subject has probably changed materially in the meantime. I admit frankly though, that St. Thomas Aquinas has said some sensible things in these notes.

Like most theologians, our author exhausts the classic difficulties, but says little about some abuses that lie under the eye of every observer in the eugenic field. He has much to say on race-suicide, promiscuity, etc., but nothing much about the sale of all that goes with wifehood for a consideration of home, wealth, title, societary position, etc.

And yet the work is a wholesome one, although the author fails to say distinctly that when the sex-function loses its spiritual exaltation, its ecstasy of wings, it becomes mere animal lust and is unworthy. The book rises, in one extended note concerning the Virgin birth of our Lord, to ideal beauty concerning the subject of spiritual conception, though, strange to say, it is here that he strays farthest afield from the paths of orthodox theology.

The book is exceedingly able and interesting, despite its theological polarization. It is, perhaps, too much to expect that a theologian should resist all deflection from his own best judgment, when the lawyer loses his sense of equity in the presence of a precedent, and the doctor his sane and common-sense vision, after the famous consultant has spoken. A.D.W.

The Sanitary Inspectors' Association of Western Canada

INDUSTRIAL HYGIENE AND DISEASES OF OCCUPATION

By Ernest W. J. Hague, A.R.S.I., Asst. Chief Health Inspector, City of Winnipeg (read before the Winnipeg Members)

THIS is a most important study, as it deals with the health, welfare and human rights of the vast majority of mankind. It has medical, economic and sociologic aspects. It includes the relations of Capital and Labor, for on the one hand we have the greed of unscrupulous employers, and on the other the carelessness and ignorance of workers. It must be borne in mind that the workers are to some extent helpless and must accept conditions as they find them. On the other hand, as knowledge of occupational diseases and of the sanitary conditions which ought to obtain becomes more general, we note that the more enlightened Trades Unions are quick to note and to demand that improvements be effected. New problems are continually arising owing to the inventions of new trade processes.

There is a difference between the terms "Industrial Hygiene" and "Occupational Disease." The former deals with the hygienic and sanitary conditions under which work is done; that is, we simply apply our knowledge of the laws of right living to the conditions of our factories, workshops and offices, just as in the study of housing we apply the same laws to the sanitary conditions obtaining in our homes. Lack of proper sanitary conditions in factories may lead to ill health or debilitated constitutions, but the conditions induced do not necessarily mean occupational disease. The latter are those contracted because of the particular occupation engaged in, and which would not have been contracted if the individual had not chosen that particular work. Most of them are due to poisonous or irritating gases, vapors or dust to which workers are exposed. They are also special affections caused by exposure to high temperatures, abnormal atmospheric pressure, etc. Rosenau puts it this way: "The general sanitary and hygienic conditions under which work is done are comprised under the head 'Industrial Hygiene.' The maladies caused by exposure to poisonous fumes, dust, or other special dangers during a manufacturing process comprise the true diseases of occupation. The former simply require the application of our general knowledge. The latter require a special study as to their causes, symptoms and modes of prevention."

It is perfectly obvious that investigation into these diseases can only be conducted by a physician. Once the causes are known, however, the work of combatting the diseases can be carried on with the added assistance of trained sanitary and factory inspectors. The most advanced work along these lines was until recently done in England. It is only during the last ten years that in America the subject has been given the importance it deserves. There is now a host of able investigators.

Statistics, especially those compiled in the early years of factory investigation, are somewhat unreliable, owing to the lack of proper and thorough investigations as to other influences besides occupation. Hansen gives a list of other factors as follows: "Over-crowded localities, including overcrowded, unventilated, dirty and insanitary houses; immorality; intemperance; high birth-rate; ignorance;

improper and insufficient food." The stock of which the worker comes, robust or otherwise, might be included. The Social Service Commission of the Ford Motor Company in Detroit evidently recognize the important part which some of these factors play, for they insist on a high standard in the home conditions of their employees, and they also aim to eventually remove all women and children from factory life.

As to the relative importance of industrial hygiene and occupational diseases, it would appear that the former should take first place, because it affects by far the greatest number of workers. Linenthal, one of the ablest investigators, expresses the idea thus: "From the standpoint of the conservation of the health of the worker, the alleviation of the conditions which do not cause specific diseases, but which have as their inevitable consequence the diminished bodily resistance, with greatly increased susceptibility to diseases of all kinds, is of even greater importance than the dealing with the causes of specific industrial disease. The number of workers in dangerous trades is only a fraction of the vast numbers employed in industries not injurious to health, but in which insanitary conditions exist."

It should be noted that it is unfair to condemn an entire industry as being injurious to health if only one or two processes used in the industry are injurious. The pearl industry might be taken as an example of a trade when conditions are bad all through, dust being generated from every process. In other industries perhaps only one room in the factory is dusty. Consider the cotton industry. Work in a cotton mill involves more or less constant confinement in a dusty atmosphere, but there are other factors in cotton mills to which sufficient attention has not been paid, viz.: the evil consequences of poor light; excessive heat; irritating gases; nauseous odors; want of cleanliness; lack of proper ventilation, including failure to properly regulate humidity. The intrinsic danger is in the opening, picking and carding processes. The danger varies with the construction of the mill, the amount of dirt in the stock, the means provided for removing the cotton and other dust. This danger can be much lessened. There is now a new card-stripping apparatus which can be so perfectly fitted to the carding machine at one end, and to a dust-tight patented machine at the other, that practically no dust escapes into the workroom.

Some occupations are intrinsically dangerous to health on account of the substances dealt with, as for instance: phosphorous, lead, arsenic, mercury, wood alcohol, naphtha, etc. On the other hand, one or more of the above substances may be used in just one process of some other trade. Some industries are classed as "dangerous" because the conditions under which they are carried on tend to reduce resistance to disease. Others again, are merely dangerous to life (mechanical violence).

Wages have an important bearing on the health of the workers, because of their effect on housing, nourishment, child-bearing, child labor, etc. Col. Gorgas gives important testimony on this point, when he claims that a large measure of the sanitary triumphs at Panama were due to a liberal wage scale.

The employment of women and children is receiving careful attention, including long hours, effect on child-bearing, the premature wearing out of children, etc. The geographical location of premises is a factor. Some factories are located in unhealthy countries or districts. The following is an instance when sociological conditions played the principal part: In an investigation by Dr. Annie S. Daniels, of New York, into "The causes, evils and remedy for tenement house manufacturing," Dr. Daniels found that the following were some of the articles manufactured in tenements: clothing, embroidery, church vestments, buttons, flowers, feathers, hair switches, cigars, boxes, furs, fur trimmings, etc. Seventy-nine out of one hundred and seventy-six families visited had some kind of infectious disease in the house; sixteen cases of scarlet fever; nine of tuberculosis. Placards were on the doors, but work going on as usual, the materials, being brought there by neighbors. The children were all employed. In some instances they were started in at

three years of age. Girls of five to eight years of age were considered quite an acquisition. One child of three years was working at buttons. This child was called up at 5 a.m. every day. The mother said pathetically that he did not waken easily. This child subsequently died. The mother and a sister with tuberculosis are still at work. Dr. Daniels saw children six years of age working at 10 p.m. Children exploited in such a manner become old and useless long before their time, that is such of them as survive their stunted and spoiled childhood. If there is anything in the theory of transmissibility of infections diseases by means of clothing, these home factories must be a danger to the community. It is useless to pride ourselves on our advanced civilization so long as in any of our large cities such conditions are allowed to exist.

In Winnipeg, although it cannot yet be classed as a large manufacturing centre, the Health Department frequently finds cases where insanitary conditions in workshops, factories and stores require rectification. They include instances of persons woring in dark cellars, or in basements partly below ground; lack of adequate sanitary conveniences; dirty or defective plumbing fixtures; overcrowded or badly ventilated workplaces, including offices; extreme heat and lack of ventilation in hotel and restaurant kitchens; dust from handling caustic soda (soap works); excessive dust (mattress factory); fumes from molten metals (printing offices); charcoal fumes (welding shops); fumes molten brass (brass foundry); Not many cases of true occupational diseases, it will be observed; in fact, only two such instances are on record, in Winnipeg: one of lead poisoning in a paint factory, and an outbreak of mercury poisoning in the making of boiler purge. The importance of systematic and careful research into both sanitary conditions and occupational diseases cannot be too much emphasized. Anything in the nature of a thorough survey of the conditions obtaining in a particular industry brings results more satisfactory than mere isolated inspections. An instance of this is found in a sanitary survey made in New York City in the year 1912 of 1,884 shops where garment workers and cloak makers, including operators, pressers and finishers were employed; eight hundred of these employees were medically examined. The tuberculosis rate amongst them was sixteen per thousand. Five hundred and two of the eight hundred had diseases of one sort or another, only two hundred and ninety-eight were free from disease. It was found that 27,813 employees were working above the sixth floor, where rescue from fire would be difficult. The sanitary conditions were extremely bad. The investigation did a great deal of good, and resulted in much improvement in the sanitary conditions attending this particular trade. For one thing, it showed the disadvantage that humane and enlightened employers were at in having to compete with the unscrupulous employers with their cheap, insanitary sweat-shops, and furnished strong evidence in favor of compelling the latter to adopt a higher standard.

As an example of a true occupational disease, we may instance lead paralysis as found amongst house painters, potters, compositors, file cutters, etc.

This disease is due entirely to the material handled. As an example of a disease due to bad hygienic conditions, we might take tuberculosis as found amongst dressmakers, cutlery grinders, operators in cotton and flax mills, etc. Induced by overcrowding, close confinement and proximity to other victims, inhalation of dust whilst at work, etc.

Occupations have therefore been classified from a practical standpoint, as follows:

1. Those occupations intrinsically dangerous to health by reason of the nature of the materials involved, or by reason of the conditions which arise from the industry.

2. Those carried on under conditions which are not indispensable to the industry or any of its processes which promote disease.

3. Those which involve exposure to mechanical violence and bearing no relation to hygiene.

Some industries come into both classes one and two, some of the dangers being avoidable and others being inherent to

the trade. The following is the classification given by Harrington:

Group 1—Occupations involving:
(a) Irritating and poisonous dusts.
(b) Irritating and poisonous gases and fumes.
(c) Infective or parasitical matter in dust.
(d) Abnormal atmospheric pressure.

Group 2—Occupations involving:
(a) Prolonged use, strain, pressure, fatigue.
(b) Excessive heat.
(c) Dampness.
(d) Offensive gases and vapors.

Irritating Dusts—These cause injury to the lung tissues. The healthy lung gradually becomes altered in structure as the workman is exposed for many hours per day, week after week, month after month, to the dust.

Table of Frequency of Disease per 100 Workmen.

	Pneumonia	Phthisis.	Digestive Disorders.
Workers in metallic dust.	17.4	28.00	17.8
Workers in mineral dust.	5.9	25.2	16.6
Workers in vegetable dust	9.4	13.3	15.7
Workers in animal dust.	6.0	22.6	15.2
Workers in non-dusty trades . . .	4.6	11.1	16.0

Ventilation is a great factor in such cases.

Metallic Dust.—A good instance: steel grinders. The average age at death of such workers is between 2 5and 40 years. The danger can be much reduced by the use of respirators and by employing a blast of air to carry dust away from the grinder. Other trades where metallic dust is evolved: the bronzing of showcards; manufacture of potassium dichromate; glass grinding; gem polishing; pottery works; stone-cutting and quarrying (more especially when such work is done in sheds); making of wall-paper (when mica or lamb's wool is used).

Vegetable Dust.—Carpenters, woodworkers: Dust from some kinds of foreign wood is alleged to have poisonous effects. The conditions in wood-working trades have of late years been much improved by the use of dust-removing machinery. Millers: not as much affected. Cotton and linen factory operatives. In Belfast, where five-sixths of the operators are women, phthisis and respiratory diseases outnumber all others by two to one. In 1892 the death-rate from phthisis was 41.1 per 10,000, as against 14.6 for the whole of England and Wales and 21.6 for the whole of Ireland. Tobacco workers: It has been stated that women workers in this trade are more subject to abortions than is usual. There is also a belief prevalent that tobacco dust protects from cholera.

Workers in wool, silk, feathers, fur, bristles, hair, horn, bone, shell, ivory, broom corn, etc. A few of the above substances are not of vegetable origin, but the irritating results are the same.

Poisonous Dusts.—Arsenic: used in making wall-paper, taxidermy, etc. Lead: used in making red or white lead, glazing pottery, zinc melting; brass or nickel polishing, type founding or setting, linotyping, making of storage batteries; dyeing and calico printing; glass cutting and polishing; painting, leather varnishing; processes where tin tacks are held in the mouth, etc.

In fact, some seventy processes where lead is used in manufactories has been noted. In some forms of lead poisoning the injury is caused by inhalation, and in some the point of entrance to the system is through the mouth via the fingers. In the case previously mentioned as occurring in Winnipeg, the victim was a foreigner engaged in grinding white lead. In England, where attention has been given to this problem for many years, the danger has been much lessened by the provision for employees of overalls, head coverings, meal accommodations, baths, etc., and by exhaust ventilation.

Irritating Gases and Fumes.—Instances —Chlorine: used in making bleaching powder. Hydrochloric acid: in alkali works and in galvanizing iron. Sulphur dioxide: used in smelting of ores, preparing hops, manufacture of sulphuric acid and matches; also used as a bleaching agent. Those exposed to the fumes of these substances develop, we are told, a gradual tolerance, the effect of the exposure not being serious or lasting. The

digestive functions are affected more than the respiratory. Bromine and nitrous fumes are also classed amongst the irritating fumes and gases.

Poisonous Gases and Fumes.—Instances —Carbon monoxide: usually given off in company with other gases in many manufacturing operations. Carbon di-sulphide: used as a solvent for fats, also in vulcanizing. Naphtha: used in rubber factories. (Both of the above are very injurious.) Nitro benzol: used in making aniline. Mercury: used in felting hats, making barometers and other instruments, electric batteries, boiler compounds.

Several cases of mercurial poisoning were discovered in Winnipeg some time ago amongst the employees of a firm manufacturing a boiler purge containing mercury. The patients absorbed the poison in one of three ways: (1) from the dust of a mortar used in mixing the ingredient; (2) from inhaling the fumes from the boiling mixture or standing over the moulds when pouring; (3) from handling the finished bars of the compound in which the mercury was plainly to be seen. Various improvements were made in the plant, including better ventilation by means of fans, the provision of adequate facilities for washing of the hands of employees, dressing rooms, overalls, etc., and in addition the factory management adopted a stringent set of rules drawn up by the Health Ofiicer, providing for periodical medical examination of employees, frequent ablutions of employees, changing of clothing, the use of gloves and respirators, care of teeth, prevention of eating of food or the use of chewing tobacco in the factory, etc. Since these rules were put into effect no further cases have developed. This instance shows that employees can in a great measure protect themselves from any injurious consequence of handling such a dangerous substance as mercury, and that as a rule they will do so once they are made to thoroughly understand the risk they run.

Phosphorous: used in making matches. This danger is not so prevalent as formerly. The importation of white or yellow phosphorous into England was prohibited some years ago, and in 1914 the United States of America followed suit. In seven other European countries the use of white or yellow phosphorous is also prohibited. There is no reason why the use of such a dangerous substance should be allowed, as equally good matches can be made from the red or amorphous phosphorous.

In Winnipeg, as previously mentioned, we have had instances of escaping hydrogen gas and acetylene gas in plants where these gases are made, and also in welding shops. Also complaints of poisonous fumes in garages not properly ventilated. The printers also insist on the provision of proper hoods and ventilating flues over all type-melting pots on linotype machines. The latter is an instance where a trades union, composed of men above the average in intelligence insisted on the corrections of injurious conditions as soon as they became aware of them.

Fumes of zinc in brass-founding: It has been found that it is the zinc and not the copper which is responsible for the injurious effects experienced sometimes in brass foundries. The zinc volatilizes and is given off as dense grey fumes. These cool and are precipitated as fine flakes. Brass foundries require especially good means of ventilation, especially during the process of pouring the molten metal into the moulds. Vapors of wood alcohol: used in lacquers, cements, polishes, perfumes, the production of coal tar colors, etc.; as is now well known, these fumes cause many cases of blindness.

Occupations Involving Exposure to Infection and Parasitic Matter in Dust or Earth.—Instances: The handling of rags, wool, horsehair, hides, etc. The danger of handling rags has probably been somewhat exaggerated, but is none the less real. Danger from the polluted soil of mines and tunnels, which in countries where climatic conditions are favorable form the nidus from which the workmen become infected with hookworms. Patient investigation has revealed the entire life history of the hookworm and the modes of infection. Now that this is understood, the disease should be brought completely under control.

Anthrax (wool sorters' disease): For long years this very fatal disease has occurred in periodic outbreaks. Twenty-six cases occurred in one curled-hair factory

within three years. Twelve cases in man and sixty cases in cattle were reported from three localities in Pennsylvania in 1897. The men worked in tanneries and the cattle were pastured in meadows watered by streams which received the effluent from the tanneries. As is often the case, the sins causing the trouble came from abroad; in this case from China. In combatting this disease, much can be done by the removal of dust by special blower apparatus, perfect cleanliness, etc. Disinfection of the materials, however, is said to impair their value. Miners' anaemia and glanders also come under this head.

Occupations Involving Exposure to Abnormal Atmospheric Pressure.—The best instance of this is caisson workers disease (the bends). This disease produces most severe pains and sometimes even death. A description of its causes is given by Dr. Seward Erdman, of Cornell University College, as follows: "Disease solely due to the ebullition of bubbles of gas (chiefly nitrogen), brought about by decompression, which is so rapid that the gases cannot be carried by the blood to the lungs and then gotten rid of gradually, as they have entered; consequently they are set free as bubbles in the body tissues and fluids, with disastrous effects in many cases, forming emboli in the circulation or damaging tissues by the force of their expansion." In the East River Tunnel, New York, in two and a-half years, out of 10,000 workers, 3,692 cases were reported. Naturally, when a disease became so common as in this case, it engaged the attention of many skilled investigators, with the result that it is now fairly well understood as to what rules should be adopted to prevent injury to the workers; the first of which is a physical examination before engaging in the work, for not every man can stand the required pressure with impunity; 15 to 20 pounds over ordinary atmospheric pressure is well stood, 20 to 30 pounds is more dangerous, and 40 to 50 pounds is the maximum that can be endured, and then only for three-quarters of an hour twice a day. In the process known as "locking out," or gradually reducing the pressure, one minute is allowed for each six pounds of pressure. This refers to the time which the workmen must spend in air locks, intervening between the lock containing the heaviest pressure and the outside air. In the New York tunnel physicians were constantly on the job and rest rooms provided.

Occupations Involving Prolonged Strain, Use, Pressure, Fatigue, etc.—Overexercise. Instances: The various cramps to which writers, pianists, violinists, telegraphers, etc., are subject. Excessive heat: experienced by engineers, stokers, cooks, bakers, miners, iron-workers, foundrymen, weavers and employees of rolling mills, wire mills, sugar refineries, etc., often combined with vitiated air, dust, dampness, etc.

Occupations Involving Exposure to Dampness.—Steaming in mills. This is now regulated by statute in England and various states. Note: The water used for humidifying should be pure.

Occupations Involving Inhalations of Offensive Gases and Vapors.—Tanning, soap-making, glue-making, fertilizer-making, etc., etc. The evidence of injury to health in such trades is slender, and any ill effects temporary only.

To improve conditions in this Province, as in all other places, we must have:

1. Investigation by medical men into the causes of occupational diseases and the effects of insanitary conditions on the workers. Very little has as yet been done in this connection in Manitoba.

2. Legislation. The Public Health Act of Manitoba provides that the Board of Health for the Province may make and promulgate regulations for securing health in industrial establishments relating to: (a) the supplying of drinking water, (b) by lighting, (c) the distance to be left between certain establishments and dwelling-houses, as well as the construction of rooms, (d) cubic air space, (e) aeration and ventilation, (f) cleanliness and cleansing, (g) the removal and manner of disposing of dust, gas, vapor and waste produced in the course of work, (h) the system of drainage, including sinks, lavatories, urinals, privies or closets, and the manner of disposing of waste liquids, (i) the temperature of the

premises, (j) all other sanitary conditions which may arise in industrial establishments.

It will be observed that there is ample provision here for the regulation of every conceivable condition which may arise in industrial establishments. Such regulations have not, however, as yet been made or promulgated by the Board. It would be desirable that when they are made that they should apply not only to factories and workshops, but to stores and offices —in fact, to any place where persons have to work. At present we have only a few very general provisions contained in the Manitoba Factory Act and the Shops Act of 1916. Such regulations should be enacted first as an intimation to employers as to what is expected of them and for their guidance in the erection of new factories and workshops. Secondly, in order that employees may know their rights. Thirdly, in order that unscrupulous employers may have no advantage over those employers who provide all necessary safeguards for the health of their employees, often at considerable expense and without compulsion. After all, such expenditure is a good investment even from a pecuniary point of view, for experience has shown that the workers in premises where hygienic conditions are good are capable of doing better and more work than those in places where conditions are bad.

3. Systematic inspection not only of factories, but of workshops, stores, offices and all other workplaces. As regards hygienic and sanitary conditions, such inspection should be made by the Health Officer or his specially qualified assistants.

4. Education, both of the employers and employed, also of the general public in order that we may have their sympathy and co-operation. There is a very fine permanent exhibit in New York City of all appliances and conveniences which can be used for securing the health, comfort, or safety of work-people. The reporting of cases of specific occupational diseases is desirable, and is already compulsory in some States. The statistics thus secured would be of great value in the struggle for better conditions for workers.

Compulsory insurance against sickness is an important factor. Some insurance companies now spend large sums annually in fighting disease, this being done merely as a matter of good business. Employers' Liability Acts have a bearing on the improvement of conditions, more especially as regards the provision of safety appliances. It may be that with the spread of education, that more suits will be instituted by employees to recover damages for ruined health. The employment of women and children should be still further restricted, and their employment prohibited in distinctly dangerous surroundings. As stated previously, due attention must be given to other factors, such as wages, housing, home-life, food, and the personal habits of the workers. Thus eventually we may hope to see all conditions of labor which are inimical to the health of the workers removed.